A Causal Relationship between Foreign Direct Investment and Economic Growth in India

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Abstract

This study investigates the relationship between Foreign Direct Investment (FDI) and economic growth for India over the period 1990-91 to 2016-17. The literature on foreign direct investment (FDI) and economic growth generally point to a positive FDI and Growth relationship. However, very few studies offer direct tests of causality between the two variables. In theory, economic growth may induce FDI inflow, and FDI may also stimulate economic growth. This paper adds to the literature by analyzing the existence and nature of these causal relationships. The present analysis focuses on India, where the growth of FDI has been the most pronounced. The Co -integration analysis suggested that there is a long-run equilibrium relationship. The results of Granger causality test showed that there is a causal relationship between the examined variables. Economic growth and FDI appear to be mutually reinforcing under the open-door policy.

Keywords: Foreign Direct Investment, Exports, Imports, Stationary, Co-integration, Casualty.

Introduction

India's economic policy reforms, adopted at the backdrop of historical economic crises of 1990-91 and some notable changes in global economic setup, have changed the whole structure of Indian economy since 1991. Among other things, the reforms have evolved in opening the economy, making it more competitive, getting the government out of the huge mode of regulation, empowering the states to take more responsibility for economic management and creating a kind of competition among the states for foreign investors. The economic reforms in India have been instrumental in breaking the Hindu rate of growth of 2.5 - 3.5 percent and moving towards more secular and faster economic growth. Capital formation has been a major challenge of growth. There were limitations in domestic sector to raise the saving rate that leads to the increase in the capital formation. As a matter of practice, saving investment gap was filled throw borrowings from abroad that result from it into a higher fiscal deficit. New industrial policy, announced on 24 th July 1991 throw liberalization of foreign investment allowing more than 50 percent equity sharing by foreign individuals/companies/Institutions. It resulted in the higher inflow of foreign capital either in the form of FDI or portfolio investment. Increase in FDI inflow has been one of the major achievements during the post-reforms period. However, its benefits have not been inter-state and intra-state variations evenly spread across the entire economy, and there are large.

The trend of FDI inflow as projected by the semi log-linear model shows a steady increase in FDI inflow in the coming years. This inflow if used judiciously and is supported by infrastructural development can have the way for fast economic growth in the country. Thus, it can be concluded that although attracting FDI can be an important factor for development, however, it is not an end in itself. The right strategy is to create a favorable environment throughout the country for equitable FDI inflow and simultaneously develop sound domestic macro-economic and structural policies.

A new foreign investment policy was put in place which stipulated three tiers for approving proposals for FDI viz, (i) RBI's automatic approval system; (ii) Secretariat for industrial approvals (SIAs) for proposals falling outside the powers delegated to RBI, and (iii) Foreign investment promotion board (FIPB), specially created body to invite, negotiate and facilitate FDI. In the backdrop of the first and second generation economic reforms, the present paper studies the continuous growth of FDI inflow in India and its impact on the economy as a whole.

Research Methodology

The present paper is based on the secondary data obtained from the Ministry of Commerce and Industry, Government of India, Reserve Bank of India, Economic Surveys of various years published by Ministry of Finance. Data have also been collected from UNCTAD, World Bank, United Nations. It is an Econometrics analysis based on Continues Growth Model (Semi-log model). Unit Root test and Causality analysis have been used through bi-variate analysis. Other statistical tools have also been used as and where required.

The Pattern of FDI during Pre and Post Economic Reforms

Pre Reform Era

The process of planned economic development in India started with the launching of First Five Year Plan on 1st April 1951. Although the foreign capital was regarded as an effective ingredient of growth, the policy regarding FDI was rather selective. During the 1st Five Year Plan, a free flow of foreign capital was welcome because it was a necessity to ensure the supply of capital goods and technical knowhow (1 st Five Year Plan, GOI). Policy toward foreign investment made a U-turn during Third and Fourth Five year plan given severe constraints on foreign exchange reserves.

By mid-1980s, the country started opening its economy by inviting foreign investments and liberalizing its trade regime. Apart from giving direct incentives to the foreign investors, monetary and fiscal support was also provided to achieve given targets of foreign direct investment. One form of such support was the creation of a tax structure conducive to direct and portfolio investments. Progress toward foreign direct investment in India was rather sluggish during1948-49 to 1989-90.

Post Reform Era

India's economic performance in the post-reforms period has many positive features. The average growth rate in the ten year period from 1992-93 to 2001-02 was around 6.0 percent. In sharp contrast, growth in the 1990s was accompanied by remarkable external stability despite the East Asian crisis. (Ahluwalia Montek S. 2002).

The annual inflow of foreign investment in India is presented in Table 1. It shows the comparative position of FDI and portfolio investment in India. In 1990-91 both these stood at $97million and $06 million respectively. While the FDI increased to $129 million, the portfolio investment decreased to $4 million during 1991-92. However, after 1992-93, portfolio investment saw a major increase and reached $3824 million in 1994-95 as compared to $1314 million as FDI. In the year 1998-99 portfolio investment saw a sudden drop and turned negative. FDI also decreased in the year but remained positive. However, since 1999-2000, both portfolio investment and FDI have continuously been increasing. In 2001-02 both these stood at $6130 million and $2021 million respectively.

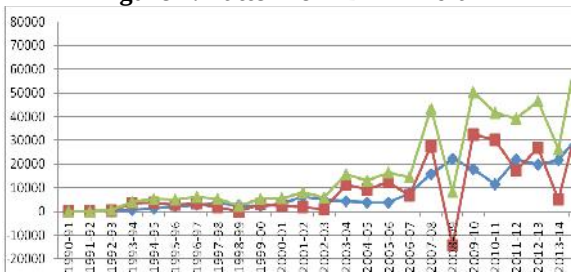
Table 1: Pattern of Foreign Investment Inflows in India (In US$ million)

Year	FDI	Portfolio Investment	Total Investment Inflows
1990-91	97	6	103
1991-92	129	4	133
1992-93	315	244	559
1993-94	586	3567	4153
1994-95	1314	3824	5138
1995-96	2144	2748	4892
1996-97	2821	3312	6133
1997-98	3557	1828	5385
1998-99	2462	-61	2401
1999-00	2155	3026	5181
2000-01	3270	2590	5680
2001-02	6130	2021	8151
2002-03	5035	979	6014
2003-04	4322	11377	15699
2004-05	3712	9291	13003
2005-06	3769	12492	16261
2006-07	7693	6947	14640
2007-08	15891	27434	43325
2008-09	22343	-14032	8311
2009-10	17965	32396	50361
2010-11	11305	30292	41597
2011-12	22006	17171	39177
2012-13	19819	26891	46710
2013-14	21564	4822	26385
2014-15	32628	40934	73562
2015-16	36021	-4016	31891
2016-17	35612	7612	43224

Source: Various Issues of RBI Bulletin

During 2007-08 both FDI and portfolio investment stood at $15891 million and $27434 million respectively. The year 2008-09 witnessed historic economic recession in the world and India too. As a result portfolio investment witnessed outflow and it was (-) $14032 million in 2008-09. The pace of growth of inflow of FDI and portfolio investment showed almost similar trends during 1999-00 to 2014-15. Higher trends were witnessed up to 2007-08. The sharp decline in portfolio investment during 2008-09 was the result of the global meltdown. While portfolio investments in India are slowing, net FDI inflows, which are far more stable, have touched a record high of $ 35612 million in 2016-17.

Figure 1: Pattern of FDI in India



The pattern in FDI is being presented as continuous growth model (semi-log model, i.e., log-lin model) in the following manner (Gujarati, 2008):

$$\text{Total FDI inflow}_t = y_0 (1 + r)^t$$

$$\log(\text{Total FDI inflow})_t = \log y_0 + t \log(1 + r)$$

$$\log(\text{total FDI inflow})_t = \beta 1 + \beta 2t$$

As per time series data on FDI inflow in India during 1990-91 to 2016-17 (Table 1), the value in the model can be put as

Dependent Variable: LOG(TOTAL INVESTMENT INFLOWS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.343246	0.346860	18.28760	0.0000
T	0.199828	0.023332	8.564399	0.0000
R-squared	0.761284	Mean dependent var		8.941006
Adjusted R-squared	0.750905	S.D. dependent var		1.685575
S.E. of regression	0.841260	Akaike info criterion		2.568787
Sum squared resid	16.27753	Schwarz criterion		2.666297
Log-likelihood	-30.10984	Hannan-Quinn criter.		2.595832
F-statistic	73.34892	Durbin-Watson stat		0.963721
Prob (F-statistic)	0.000000	Growth rate		58.42

Thus, the value of r (growth rate) is equal to 58.42 percent. This means that the r (growth rate) measures the constant proportional or relative change in total FDI inflow for a given absolute change in time. All results show that this model is fitted.

Impact of FDI on Economic Growth

In earlier studies, the impact of FDI on growth was limited in the short-run since long-term growth was largely considered to be contingent upon technology progress (Grossman and Helpman, 1991). On the other hand, according to the more recent indigenous growth theory, FDI is considered as a composite of capital, know-how, and technology (Balsubramanyam et al., 1996). Under this approach, FDI can have a permanent positive impact on economic growth by generating increasing returns to scale through externalities and positive productivity spillovers (De Mello, 1997).

The positive impact of FDI is likely to be higher as value addition under FDI increases. Apart from increasing capital formation, FDI encourages the use of new inputs and technology. Also, FDI or even purely technical collaborations are considered as a vehicle for change in management practices and organizational arrangements in the recipient developing countries (De Mello, L.R. and M. Thea Sinclair, 1995). Empirical investigations have found that the positive impact of FDI is generally higher for recipient countries with a higher level of development (Blomstom et al.1994). Such findings support the arguments that in the absence of a minimum threshold level of development, the positive impact of FDI on the economy is lost (Borenszteen et al., 1995).

India's increasing openness to FDI has contributed significantly to its growth performance. This includes raising the foreign ownership to 100 percent in most of the sectors, ending state monopoly in insurance and telecommunications, opening up of banking and manufacturing to competition and disinvestment of state ownership in public sector undertakings.

Though the foreign companies investing in India have performed better than the domestic companies, FDI to India has been attracted mainly by the lure of the large market. In 2008-09 the FDI inflow and consequently the growth of the economy witnessed a downfall due to the global recession however the Indian economy witnessed a swift recovery in 2009-10. The global economic slowdown had affected the Indian economy and GDP growth moderated to 6.8% in 2008-09 compared to an average of 9.5% in the preceding three years. The impact of the global slowdown was more intense on the industry, particularly the manufacturing sector. The fiscal and monetary policy interventions, however, provided the stimulus to the economy, leading to a recovery in the GDP growth to 8.0% in 2009-10 and 8.9% in the first half of 2010-11(Economic Survey, 2010-11).

In general terms, FDI inflow has a positive impact on the growth of GDP in India. Table 2 reveals that FDI inflow increased from 1991 to 2013-14 despite some serious fluctuations. GDP has increased by about three times during the same period. An econometric model is being put forward to quantitatively prove the relationship between GDP growth and FDI inflow.

Table 2: Trends of Growth Rate of GDP and FDI Inflow (Rs. In Crore)

Year	FDIInflow	Growth Rate (in %)	GDP at Factor Cost	Growth Rate (in %)
1991-92	326	-	1099072	-
1992-93	1713	425.46	1158025	5.36
1993-94	13026	660.42	1223816	5.68
1994-95	16133	23.85	1302076	6.39
1995-96	16364	1.43	1396974	7.29
1996-97	21773	33.05	1508378	7.97
1997-98	20014	-8.08	1573263	4.30
1998-99	10101	-49.53	1678410	6.68
1999-00	22450	122.26	2023130	20.54
2000-01	10733	-52.19	2177413	7.63
2001-02	18654	73.80	2355845	8.19
2002-03	12871	-31.00	2536327	7.66
2003-04	10064	-21.81	2841503	12.03
2004-05	14653	45.60	3242209	14.10
2005-06	24584	67.77	3693369	13.92
2006-07	56390	129.38	4294706	16.28
2007-08	98642	74.93	4987090	16.12
2008-09	142829	44.80	5630063	12.89
2009-10	123120	-13.80	6477827	15.06
2010-11	97320	-20.96	7784115	20.17
2011-12	165146	69.69	8832012	13.46
2012-13	121907	-26.18	9988540	13.09
2013-14	147518	21.01	11345056	13.58
2014-15	189107	28.19	10536984	-7.12
2015-16	262322	38.72	11381002	8.01
2016-17	291696	11.20	12189854	7.11

Source: (i) RBI, (ii) SIA, Newsletter & Economic Survey 2017-18

Dependent Variable: lOG(GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.72888	0.623572	17.20552	0.0000
lOG(FDI Inflow)	0.413313	0.061213	6.752039	0.0000
R-squared	0.684637	Mean dependent var		14.89562
Adjusted R-squared	0.669620	S.D. dependent var		0.747168
S.E. of regression	0.429462	Akaike info criterion		1.230376
Sum squared resid	3.873195	Schwarz criterion		1.329114
Log-likelihood	-12.14932	Hannan-Quinn criter.		1.255208
F-statistic	45.59003	Durbin-Watson stat		0.432822
Prob(F-statistic)	0.000001			

The log-linear OLS model shows that GDP will certainly grow with the growth in FDI inflow. Since the value of R2 and R 2 are almost the same, the model is fitted.

$$log\ GDP = \beta_1 + \beta_2\ log(\ FDI\ Inflow)$$

Null unit root test for GDP

Null Hypothesis: D(LOG(GDP)) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=4)

			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.755018	0.0819	
Test critical values:	1% level	-3.788030		
	5% level	-3.012363		
	10% level	-2.646119		

*MacKinnon (1996) one-sided p-values.

Null Unit Root Test for FDI

Null Hypothesis: D(LOG(FDI)) has a unit root
Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=4)

			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.081059	0.0053	
Test critical values:	1% level	-3.788030		
	5% level	-3.012363		
	10% level	-2.646119		

*MacKinnon (1996) one-sided p-values.

The Outcome of Unit Root

ADF Test		P-value	Decision
Log(GDP)	2.755081	0.0819	Significant
Log(FDI)	4.081059	0.0053	Significant

Result of Stationary Test

Both Log(GDP) and Log(FDI) are not stationary in their level from, but the desired level of stationary was achieved after first level difference with significant ADF test values of 2.755081 and 4.081059 in absolute value respectively. We reject

the null hypothesis of the presence of unit root in both cases. The above results confirm theoretical expectations.

Granger Causality Test

Pair-wise Granger Causality Tests

Lags: 2

Null Hypothesis:	Obs	F-Statistics	Prob.
Log(GDP) does not Granger Cause Log(FDI)	21	4.17677	0.0347
Log(FDI) does not Granger Cause Log(GDP)		1.22637	0.3195

Results of Causality Test

Direction of Causality	F	Decision
Log(FDI) → Log(GDP)	4.17677	Reject
Log(GDP) → Log(FDI)	1.22637	Accept

The result suggests that the direction of causality is bi-direction in nature since the estimated F values are significant at 5% level of significance. The critical values are 4.17677 and 1.22637 respectively. The granger causality test under the null hypothesis H0: Log(GDP) does not Cause Log(FDI), is statistically significant, which implies that there is causality between Log(FDI) and Log(GDP). More FDI inflow into the Indian economy leads to increase in GDP.

Conclusion

If India has to achieve its desired goals and after that , the ambitious plans of "Make in India," "Digital India" and the dream of India becoming a global economic giant in the world, then our economy has to be strong and vibrant, and the results of development have to be equitably distributed. This implies that we have to work towards inclusive growth and sustainable development. The results of first and second generation economic reforms would be realized only if suitable changes in institutional apparatus and organizations are implemented both at the Central and State levels for attracting FDI inflows, besides infrastructure development and sincere effort for a corruption free and efficient economy.

The economic reforms in India have been instrumental in breaking the Hindu rate of growth of 3.5 percent and moving towards faster economic growth. Increase in FDI inflow has been one of the major achievements in the post-reforms period. However, its benefits have not been evenly spread across the entire economy, and there are large interstate and intra state variations. The pattern of FDI inflow as projected by the semi log-linear model shows a steady increase in FDI inflow in the coming years. This inflow if used judiciously and supported by infrastructural development could pave the way for fast economic growth in the country.

Thus, it can be concluded that although attracting FDI can be an important factor for development, however, it is not an end in itself. The right strategy would be to create a favorable environment throughout the country for equitable FDI inflow and simultaneously develop sound domestic macro-economic and structural policies.

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